Commonwealth of Kentucky
Division for Air Quality

PERMIT STATEMENT OF BASIS

CONDITIONAL MAJOR DRAFT PERMIT NO. F-06-058
AMERICAN NATIONAL RUBBER CO., CADIZ DIVISION
CADIZ, KY.
JANUARY 25, 2007
RON SCHNEIDER, REVIEWER

SOURCE ID #:	21-221-00010
SOURCE A.I. #:	39970
ACTIVITY ID#:	20050002

SOURCE DESCRIPTION:

American National Rubber manufactures a variety of closed cell sponge rubber products. The Cadiz facility produces primarily closed cell gaskets, packing, and sealing devices for the automotive industry. The process begins with extruded slabs of uncured, unexpanded rubber. The slabs are placed into the cure press and cured in a compression molding process under high temperature and pressure. The press-cured slabs are then placed in the hot air oven where they are further expanded and stabilized under atmospheric pressure. The cooled slabs are fabricated into parts and sold.

COMMENTS:

The source is currently operating under permit F-01-003 that was issued on April 18, 2001, and that expired on April 18, 2006. The permit authorized construction of the Catalytic Oxidizer to control the Volatile Organic Compounds (VOC) from the two Hot Air Ovens, so that the sourcewide VOC emissions would be less than 90.0 tons/yr, as required in Section D of the permit, F-01-003.

An application for a permit renewal was received on September 2, 2005, which is more than six months before the expiration date, as required by Regulation 401KAR52:030 Section 12. The renewal application proposed no changes to the permit, except that the source name on page 2 of the DEP7007AI form was changed from American National Rubber Co., Cadiz Division to American National Rubber.

This permit renewal is being issued on the most recent Conditional Major permit template which has current requirements and regulations. Since the construction requested under permit F-01-003 has been completed, the sections dealing with construction and initial compliance testing have been removed from the renewed permit.

The compliance tests required in F-01-003 were performed on October 30, 2001 for Particulate, and January 22, 2002 for Volatile Organic Compounds (VOC) with the following results:

a. Particulate emission rate = .14 lb/hr for Hot Air Ovens #1 and #2 combined,
b. Volatile Organic Compound (VOC) destruction efficiency of 86% for the catalytic oxidizer.

The emissions inventory has been adjusted to account for the lower emissions demonstrated in the compliance test.

The opacity requirements for the Two Cure Presses P1(P1) were amended to require qualitative opacity readings once each quarter, rather than Method 9 opacity readings. Method 9 opacity readings would be required only if the qualitative opacity readings seemed to be higher than normal. Identical opacity reading requirements were added for the two Hot Air Ovens, which previously had none.

Emission factors and their source:

O1, O2 Hot Air Ovens #1 and #2: Emissions due to the combustion of natural gas were calculated according to AP-42, Section 1.4. The emission factors for VOC were established by precisely weighing product samples before and after press and oven operations. The mass change from these processes is assumed to represent VOC emissions and some non-VOC emissions such as moisture and blowing agent decomposition. These non-VOC emissions are derived from supplier certificates, laboratory tests, and mass balance calculations. The emission factors for styrene and 1,3 butadiene are based on the maximum concentration of these residual monomers in the polymer. It is assumed that all residual monomers are emitted during the process. The emission factor for particulate emissions due to condensable organics is based on stack tests performed in 2000 on Hot Air Oven #1. Since Hot Air Oven #2 will be very similar to Hot Air Oven #1, it is assumed that these ovens will have the same emission factors.
P1 Two Cure Presses: The emission factors for VOC, styrene, and 1,3 butadiene were established in the same manner as for the hot air ovens. The emission factor for particulate emissions due to condensable organics is based on stack tests performed in 2000 on Hot Air Oven #1. Since an average of 28% of the total mass loss of VOC is from the cure press, it is assumed that the emissions of PM would be approximately 39% (28/72) of the PM emission factor for the hot air ovens.
B1 Boiler: Emissions due to the combustion of natural gas were calculated according to AP-42, Section 1.4.
A1 Adhesive Coating: Emissions were calculated based on solvent concentrations in the adhesive. It is assumed that all solvent is emitted during the process.

Applicable regulations:

401 KAR 59:010, New Process Operations, applies to the particulate matter emissions from units constructed on or after July 2, 1975, which are not subject to another emissions standard with respect to particulates in 401 KAR Chapter 59. This includes the following emissions points:
O1 Hot Air Oven #1: Emissions of particulate shall not exceed 2.34 lb/hr and the opacity shall not equal or exceed 20 percent.
O2 Hot Air Oven #2: Emissions of particulate shall not exceed 2.34 lb/hr and the opacity shall not equal or exceed 20 percent.
P1 Two Cure Presses: Emissions of particulate shall not exceed 2.34 lb/hr from each oven and the opacity shall not equal or exceed 20 percent.

401 KAR 59:015, New indirect heat exchangers, applies to the particulate emissions and sulfur dioxide emissions of indirect heat exchangers with a capacity of greater than one million BTU per hour (mmBtu) that were commenced on or after April 9, 1972 (for indirect heat exchangers with a capacity of 250 mmBtu/hr heat input or less). This includes the following emissions points:
B1 Boiler: Emissions of particulate shall not exceed 0.56 lb/mmBtu actual heat input and opacity shall not exceed 20 percent. Emissions of sulfur dioxide shall not exceed 3.0 lb/mmBtu actual heat input.

401 KAR 50:012, General application, Section 1(2), **does not apply** since the Cadiz Division of American National Rubber is not a major contaminate source.

40 CFR 60, Subpart DDD (Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry) **does not apply** since the Cadiz Division of American National Rubber does not manufacture a polymer but begins their manufacturing process with extruded slabs of uncured, unexpanded rubber.

40 CFR 63, Subpart U (National Emission Standards for Hazardous Air Pollutant Emissions: Group I Polymers and Resins) and 40 CFR 63, Subpart JJJ (National Emission Standards for Hazardous Air Pollutant Emissions: Group IV Polymers and Resins) **do not apply** since the Cadiz Division of American National Rubber does not manufacture an elastomer product as defined by 40 CFR 63.482 or 63.1312.

Sourcewide Emission Limitations:

The emission of any individual Hazardous Air Pollutant (HAP) shall not exceed nine (9) tons and the total emission of combined HAP shall not exceed 22.5 tons during any consecutive twelve (12) month period. The emissions of volatile organic compounds (VOC) shall not exceed ninety (90) tons during any consecutive twelve month period.

Compliance demonstration:

Sourcewide Emission Limitations:

Compliance with the HAP emission limits are demonstrated by a usage limit of 23.7 tons per year of adhesive coating. Compliance with the VOC emission limit is demonstrated by proper operation of the catalytic oxidizer that controls the hot air ovens.
O1, O2 Hot Air Ovens #1 and #2: Compliance with the mass emission limit and opacity limit will be demonstrated by proper operation of the catalytic oxidizer and visual observations of emissions.
P1 Two (2) Cure Presses: Compliance with the mass emission limit will be demonstrated by calculation using an emission factor of 5.42 lbs per ton of material processed. Compliance with the opacity limit will be demonstrated by visual observation of emissions.
B1 Boiler: Compliance is demonstrated while burning natural gas. The potential to emit of sulfur dioxide and particulate from this natural gas boiler is less than 10% of the respective allowable emission rates.
A1 Adhesive Coating: The only allowable emission rates for the adhesive coating process are sourcewide emission limitations for VOC and HAPs. There are no particulate matter emissions from emission unit A1, Adhesive Coating.

Insignificant Activities:

American National Rubber has 10 natural gas fired space heaters which meet the definition of insignificant activities.

General Comments:

American National Rubber was issued a draft Title V permit in August 2000. Before a final permit was issued, they requested that they would instead be issued a conditional major permit with the addition of a control device on their hot air ovens. On December 8, 2000, they submitted an application for the construction of a catalytic oxidizer and a request that they be issued a conditional major permit.

EMISSION AND OPERATING CAPS DESCRIPTION:

American National Rubber has requested that a conditional major permit be issued with federally enforceable conditions to limit emissions of VOC, total HAP, and toluene to below major thresholds. This permit requires both hot air ovens to be controlled by a catalytic oxidizer with a VOC destruction efficiency of at least 70% and limits the use of adhesive coating to 23.7 tons per year. These requirements will reduce the potential to emit (PTE) of VOC to 79.4 tons per year, the PTE of total HAP to 18.7, and the PTE of toluene to 9.0.

PERIODIC MONITORING:

O1, O2 Hot Air Ovens #1 and #2: The inlet and outlet temperature of the catalytic oxidizer shall be continuously monitored when the oxidizer is controlling emissions.
P1 Two (2) Cure Presses: The permittee shall monitor the weight and type of rubber slabs processed and the hours of operation (in order to calculate the PM emission rate). Method 9 observations will be used to monitor opacity.
B1 Boiler: The permittee shall monitor natural gas usage.
A1 Adhesive Coating: The permittee shall record the monthly usage of adhesive coating.

OPERATIONAL FLEXIBILITY:

None

CREDIBLE EVIDENCE:

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has not incorporated these provisions in its air quality regulations.